

REMARKS

The Examiner requested copies of non-patent literature documents cited in PTO-1449 filed June 20, 2005. Attached herein are copies of non-patent literature documents requested by the Examiner. Additionally, applicants kindly direct the Examiner's attention to the fact that the reference BA cited in PTO-1449, an article by Hernandez-Pajares et al., "Impact of real-time ionospheric determination on improving precise navigation with GALILEO and next-generation GPS," Proceedings ION was not published in September 2002 as erroneously indicated in the International Search Report dated June 18, 2004 (attached herein for your reference). In fact, as certified in the attached copy of a certificate from the Institute of Navigation, the article cited as reference BA in PTO-1449 and the International Search Report was not published until January 8, 2003, i.e., after the claimed French priority date of December 19, 2002 of the instant application.

Claims 10-18 have been rejected under 35 U.S.C. § 112, second paragraph, as allegedly being indefinite for failing to particularly point out and distinctly claim the subject matter of the invention. In accordance with the Examiner's kind suggestion, applicants have amended claim 10 in good-faith to define applicants' invention in clear and definite terms, as required by U.S.C. § 112.

Regarding the phrases "extra-wide lane" and "wide lane," applicants respectfully directs the Examiner's attention to Equations (1) and (4) which mathematically define "extra-wide lane" and "wide lane" combinations of carrier phases, respectively, using a combination of pseudoranges or codes, for example, defined in Equations (2). (See, for example, paragraphs 58-72). The pseudoranges or codes are defined having the same geometry, clocks, tropospheric and ionospheric dependences which does not affect the corresponding ambiguity estimation, thereby reducing the initial pseudorange noise. Accordingly, contrary to the Examiner's

assertion, these two terms have been defined in clear and definite terms, as required by U.S.C. § 112. Moreover, applicants respectfully submit that these terms are well-known to one of ordinary skill in the art. In fact, an article by Vollath et al., attached herein and cited as reference BE in PTO-1449, describes the concept of narrow lane and wide lane ambiguities of the phase differences.

To assist the Examiner in understanding these concepts of wide lane and extra-wide lane ambiguities of the phase differences between the combinations of carrier phases, applicants respectfully submits the following explanations for Examiner's benefit. In general, a "wide lane" or "extra-wide lane" combination of carrier phases is obtained from the subtraction of phases of two carriers (in cycles) with close frequencies or very close frequencies in such a way that a third carrier is mathematically synthesized with a small or very small frequency equal to the difference of two frequencies of the two carriers. This results in a long wavelength for a wide lane (or a very long wavelength for an extra-wide lane), which is equal to the speed of light divided by the corresponding frequency.

Such "widening" process is very useful for GPS navigation in general and is the subject matter of the present invention. The present invention operates with a high wavelength carrier phase, higher than a typical code (or pseudorange) multipath, which facilitates the initial ambiguity estimation using the corresponding code in a simple and straightforward way, thereby advantageously making the present invention very suitable for real-time positioning in particular and navigation in general.

In view of the support found in the specification for "wide lane" and "extra-wide lane" ambiguities of the phase differences between a combination of carriers and remarks herein, applicants respectfully request that rejections of claims 10-18 under 35 U.S.C. § 112, second paragraph, be withdrawn.

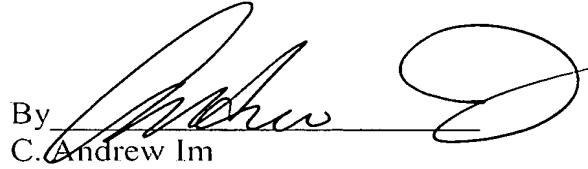
Accordingly, in view of the above amendment, applicants believe all of the pending claims 10-18 are in condition for allowance.

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Amendment dated January 10, 2007
Reply to Office Action of October 10, 2006

GRYN 221-US (10505441)

Applicant believes no fee is due with this response. However, if a fee is due, please charge our Deposit Account No. 50-0624, under Order No. GRYN 221-US (10505441) from which the undersigned is authorized to draw.

Respectfully submitted,

By 
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